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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,951	12/03/2002	Shawn W. Smith	CR-2	9614

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EXAMINER	
DOAN, DUYEN MY	

ART UNIT	PAPER NUMBER
2143	

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/065,951	SMITH, SHAWN W.	
	Examiner	Art Unit	
	Duyen M. Doan	2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 December 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 December 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/03/02*
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DD

Detail Action

Claims 1-20 are presented for examination.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5-7, 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster et al (US pat 6,360,271) (Hereinafter Schuster) in view of Surazski et al (us pat 6,657,983) (Hereinafter Surazski).

As regarding claims 1, Schuster discloses a jitter buffer for receiving incoming VOIP packets from an Internet, the incoming VOIP packets containing compressed audio data from a remote VOIP application (col.3, lines 60-62); an audio application, receiving the compressed audio data from the incoming VOIP packets, for de-compressing the compressed audio data for playback to a user, and for capturing local audio data from the user (col.2, lines 47-56), col.11, lines 48-53); a packetizer, receiving the local audio data from the audio application, for compressing the local audio data and encapsulating the local audio data into outgoing VOIP packets for transmission over the Internet to the remote VOIP application (col.9, lines 1-6); an estimator, receiving a reception time for a current VOIP packet that indicates when the

current VOIP packet was received by the jitter buffer and receiving a prior reception time that indicates when a prior VOIP packet was received by the jitter buffer, for generating a bandwidth estimate for an incoming path through the Internet taken by the incoming VOIP packets (col.4, lines 29-32, col.5, lines 27-38); and a comparator, in the estimator, for comparing an arrival difference of the reception time and the prior reception time to an audio duration that indicates a duration of playback to the user of the compressed audio data encapsulated by the current VOIP packet (col.5, lines 32-38); wherein the packetizer receives the bandwidth estimate from the estimator, the packetizer sending the bandwidth estimate to the remote VOIP application, whereby incoming bandwidth is estimated by comparison of the arrival difference to the audio duration (col.12, lines 1-67).

Schuster does not expressly disclose the estimator decreases the bandwidth estimate when the comparator determines that the arrival difference exceeds the audio duration but increases the bandwidth estimate when the comparator determines that the arrival difference is below the audio duration.

Surazski teaches the estimator decreases the bandwidth estimate when the comparator determines that the arrival difference exceeds the audio duration but increases the bandwidth estimate when the comparator determines that the arrival difference is below the audio duration (col.2, lines 31-67).

It would have been obvious to one with ordinary skill in the art at the time of the invention was made to combine the teaching of Surazski with Schuster' system to increase or decrease the bandwidth estimate base on the arrival time of the packets for

the purpose of more efficient bandwidth ultilization and reduced cell loss ratio (see Surazski col.2, lines 52-55).

As regarding claim 2, Schuster-Surazski discloses the estimator re-estimates the bandwidth estimate continuously for each incoming VOIP packet or periodically for a subset of the incoming VOIP packets (see Schuster col.4, lines 29-41).

As regarding claim 3, Schuster-Surazski discloses the packetizer inserts the bandwidth estimate into the outgoing VOIP packets (see Schuster col.12, lines 56-67, send the information back to the first device).

As regarding claim 5, Schuster-Surazski discloses the jitter buffer re-orders the incoming VOIP packets based on sequence numbers contained in the incoming VOIP packets, whereby out-of-order incoming VOIP packets are re-ordered prior to audio playback (see Schuster col.10, lines 7-11).

As regarding claim 6, the limitations are similar to limitations of claim 1, therefore rejected for the same rationale as claim 1.

As regarding claim 7, Schuster-Surazski discloses the bandwidth estimate is included in an audio packet sent from the local application to the remote application, whereby the audio packet contains audio data from the local application but the bandwidth estimate for audio packets sent by the remote application (see Schuster col.8, lines 34-43, col.12, lines 1-67).

As regarding claim 17, the limitations are similar to limitations of claim 1, therefore rejected for the same rational as claim 1.

As regarding claim 18, Schuster-Surazski discloses the packeting means inserts the bandwidth estimate from the analysis means into at least some of the outbound packets to provide current-status feedback to the remote audio application, the current-status feedback indicating a condition of the first network path, whereby current-status feedback of the first network path is sent to the remote audio application with the encoded local audio (see Schuster col.12, lines 1-67).

As regarding claim 19, Schuster-Surazski discloses the incoming packets also contain a send time-stamp (see Schuster col.9, lines 1-25); further comprising: congestion estimate means, coupled to receive the send time- stamp from the incoming packets, for determining a packet latency for routing of the incoming packets over the first network path but not over the second network path, the congestion estimate means generating a congestion estimate by comparing the packet latency to a moving average packet latency to signal increased congestion when the packet latency rises above the moving average packet latency, wherein the packeting means sends the congestion estimate from the congestion estimate means to the remote audio application (see Schuster col10, lines 54-67, col.12, lines 1-67).

As regarding claim 20, Schuster-Surazski discloses packet loss means for increasing a packet loss counter when an incoming packet sent by the remote audio application fails to arrive at the buffer means within an acceptable delay, wherein the packeting means sends the packet loss counter from the packet loss means to the remote audio application (col.4, lines 1-67).

Claims 4, 8-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster and Surazski as applied to claim 1 above, and further in view of Martin et al (us pat 5936940).

As regarding claim 4, Schuster-Suraski discloses all the limitations of claim 1 above, and the jitter buffer receives a send time for the current VOIP packet from the jitter buffer, the send time being added to the current VOIP packet by the remote VOIP application to indicate a time that the current VOIP packet was transmitted to the Internet by the remote VOID application (see Schuster col.2, lines 57-63); a congestion estimator, receiving the send time and the reception time for the current VOIP packet, for generating a current latency as a difference of the reception time and the send time for the current VOIP packet; and a moving average comparator, receiving the current latency, for comparing the current latency to a moving-average latency (see Schuster col.5, lines 27-38); wherein the packetizer receives the congestion estimate from the congestion estimator, the packetizer sending the congestion estimate to the remote VOIP application, whereby congestion on the incoming path is estimated by comparison of the current latency to the moving-average latency (see Schuster col.12, lines 1-67).

The combination of Schuster-Surazski does not expressly disclose the congestion estimator increases a congestion estimate for the incoming path when the current latency exceeds the moving-average latency, but for decreasing the congestion estimate after the current latency falls below the moving--average latency.

Martin teaches the congestion estimator increases a congestion estimate for the incoming path when the current latency exceeds the moving-average latency, but for decreasing the congestion estimate after the current latency falls below the moving--average latency (see Martin col.9, lines 1-67, col.8, lines 40-67).

It would have been obvious to one with ordinary skill in the art at the time of the invention was made to combine the teaching of Martin to the system of Schuster-Surazski to increase or decrease the congestion estimate for the purpose of providing accurate estimation of path delay, the use of appropriate admission increase or decrease change functions and avoid sluggish response to rapid congestion changes (see Martin Col.2, lines 27-33).

As regarding claim 8, Schuster-Surazski discloses all the limitations of claims 6 and 7 above but the combination of Schuster-Surazski does not expressly disclose the inter-packet arrival time is substantially equal to the duration time, increasing the bandwidth estimate by a small fixed amount to test for an increased available bandwidth of the network path.

Martin teaches the inter-packet arrival time is substantially equal to the duration time, increasing the bandwidth estimate by a small fixed amount to test for an increased available bandwidth of the network path (see Martin col.9, lines 1-67).

It would have been obvious to one with ordinary skill in the art at the time of the invention was made to combine the teaching of Martin to the system of Schuster-Surazski to increase or decrease the bandwidth estimate for the purpose of providing accurate estimation of path delay, the use of appropriate admission increase or

decrease change functions and avoid sluggish response to rapid congestion changes (see Martin Col.2, lines 27-33).

As regarding claim 9, Schuster-Surazski-Martin discloses reducing the bandwidth estimate comprises reducing the bandwidth estimate by a portion of a difference of the inter-packet arrival time and the duration-time; wherein increasing the bandwidth estimate comprises increasing the bandwidth estimate by a portion of a difference of the duration-time and the inter-packet arrival time, whereby bandwidth estimate changes are in proportion to differences between the duration-time and the inter-packet arrival time (see Martin col.9, lines 1-67). The same motivation utilized in claim 8 applied equally well to claim 9.

As regarding claim 10, Schuster-Surazski-Martin discloses the portion is a multiple of the duration-time (see Martin col.9, lines 1-67). The same motivation utilized in claim 8 applied equally well to claim 10.

As regarding claim 11, Schuster-Surazski-Martin discloses the prior packet has a sequence number that is less than a sequence number for the current packet (see Schuster col.10, lines 2-28).

As regarding claim 12, Schuster-Surazski-Martin discloses the sequence number of the prior packet is one less than the sequence number of the current packet (see Schuster col.12, lines 2-28).

As regarding claim 13, the limitations are similar to limitations of claim 4, therefore rejected for the same rationale as claim 4.

As regarding claim 14, Schuster-Surazski-Martin discloses when the current latency is below the moving average latency, not changing the congestion estimate to indicate recovery from congestion along the network path, whereby congestion is allowed time to recover before the congestion estimate is reduced (see Martin col.9, lines 1-67). The same motivation utilized in claims 4,13 applied equally well to claim 14.

As regarding claim 15, Schuster-Surazski-Martin discloses the congestion estimate is increased in proportion to an absolute value of a difference between the current latency and the moving average latency but the congestion estimate is decreased by a fixed amount (see Martin col.9, lines 1-67). The same motivation utilized in claims 4,13 applied equally well to claim 14.

As regarding claim 16, Schuster-Surazski-Martin discloses the current latency is a one way latency from the remote application to the local application and not a round-trip latency (see Schuster col.10, lines 29-47).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duyen M. Doan whose telephone number is (571) 272-4226. The examiner can normally be reached on 9:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner
Duyen Doan
Art unit 2143
DD

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